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[Claim(s)]

[Claim 1]A portable telephone terminal which can receive image data (it is hereafter written as the 1st image data) of a television broadcasting signal broadcast via a communication network of a portable phone system characterized by comprising the following.
A television set received by a television antenna. Image data of television broadcasting from (writing it as a television receiver hereafter). It makes it possible to input (it is hereafter written as the 2nd image data), And it has TV connection interface means which makes it possible to output to said television receiver by making into a control signal tuner adjustment control information which carries out adjustment control of the tuning frequency of a tuner of said television receiver, Said 2nd image data from said television receiver inputted via this TV connection interface means.
An image comparing means which carries out comparative collation of the 1st image data of television broadcasting received via a communication network of said portable phone system. So that it may be made in agreement [approach and] with said 1st image data, [based on a comparative collation result by this image comparing means] [said 2nd image data of television broadcasting received via said television antenna] A tuner control signal output means outputted via said TV connection interface means by making said tuner adjustment control information for carrying out adjustment control of the tuner of said television receiver into a control signal.

[Claim 2]A portable telephone terminal provided with a positional information detecting means which can receive a whereabouts position of a base transceiver station which has transmitted and received a radio signal via a communication network of a portable phone system characterized by comprising the following from this base transceiver station.
It has TV connection interface means which makes it possible to output to said television receiver by making into a control signal tuner adjustment control information which carries out adjustment control of the tuning frequency of a tuner of a television set (it is hereafter written as a television receiver), A tuner adjustment control information index means to carry out the index of the tuner adjustment control information of said television receiver, and to acquire it

based on location information of said base transceiver station detected by said positional information detecting means.
A tuner control signal output means outputted via said TV connection interface means based on said tuner adjustment control information by which the index was carried out by making tuner control information for carrying out adjustment control of the tuner of said television receiver into a control signal.

[Claim 3]A television set stored in opposite apparatus by which interconnection was carried out via a communication network of a portable phone system. [out of tuner adjustment control information which carries out adjustment control of the tuning frequency of a tuner of (writing it as a television receiver hereafter)] [tuner adjustment control information returned according to a demand] [via said communication network] In a portable telephone terminal provided with receivable TV control signal transmission and reception means, Have TV connection interface means which makes it possible to output to said television receiver by making said tuner adjustment control information about a tuner of a television receiver into a control signal, and with said TV control signal transmission and reception means, A portable telephone terminal having a tuner control signal output means outputted via said TV connection interface means by making into a control signal said tuner adjustment control information received from said opposite apparatus.
[Claim 4]A portable telephone terminal having a control means by a help for carrying out start indication of the adjustment control of a tuner of said television receiver in the portable telephone terminal according to any one of claims 1 to 3.
[Claim 5]A portable telephone terminal having a timer start control means which was defined beforehand, and to which start indication of the adjustment control of a tuner of said television receiver is periodically carried out for every time limit in the portable telephone terminal according to any one of claims 1 to 3.
[Claim 6]It has a displaying means to which image display of the image data of television broadcasting received via a communication network of a portable phone system is carried out in the portable telephone terminal according to any one of claims 1 to 4, [a picture by which image display is carried out to this displaying means, and a picture which has the same Television Sub-Division contents of broadcast] Have a control means which can perform directions displayed on said television receiver, and tuner adjustment control information for carrying out adjustment control of the tuner of said television receiver is made into a control signal based on operation of this control means, A portable telephone terminal provided with a tuner control signal output means outputted via said TV connection interface means.
[Claim 7]Specification specified in the portable telephone terminal according to any one of claims 1 to 6 among each channel of two or more television broadcasting receivable in a current position, Or it has an output channel directing means which can perform selection instructing which extracts and outputs tuner adjustment control information about all the receivable channels, Based on said tuner adjustment control information about a channel which this output channel directing means directs, said tuner adjustment control information for

carrying out adjustment control of the tuner of said television receiver is made into a control signal one by one, A portable telephone terminal provided with a tuner control signal output means outputted via said TV connection interface means.
[Claim 8][in the portable telephone terminal according to any one of claims 1 to 7] [said tuner adjustment control information over said television receiver] A portable telephone terminal provided with a tuner control signal output means which outputs a control signal for making said television receiver memorize via said TV connection interface means.
[Claim 9]A television set being able to make an adjustment control action of a tuner, and/or storage control operation which makes tuner adjustment control information memorize perform based on a control signal from the portable telephone terminal according to any one of claims 1 to 8.

[Detailed Description of the Invention]
[0001]
[Field of the Invention]The portable telephone terminal in which this invention has a function for tuner adjustment control of a television set especially about the portable telephone terminal for wireless communications, and the television set which receives television broadcasting, It is related with the television set which performs tuner adjustment based on this function for tuner adjustment control.
[0002]
[Description of the Prior Art]In the present portable phone system, it is only possible to perform not only speech communication but transmission and reception of data. It is also becoming possible to make the dynamic image data like television broadcasting transmit, and to receive and carry out a screen display of the image data of this television broadcasting by the portable telephone terminal side via the communication network of a portable phone system, with improvement in a bit rate. Generally a portable phone system is a two-way communication system.
Since correction of the data error transmitted and received is also possible, the television picture by a portable phone system can expect that a screen display based on exact image data will become possible as compared with the television picture in the usual television broadcasting which used the broadcasting electric-wave radio signal.
By the key operation of a portable telephone terminal, the channel selection of television broadcasting is also possible also for enabling it to carry out easily, and can also realize the channel operation by this key operation, without being dependent on a place with a portable telephone terminal.
[0003]On the other hand, in the usual television broadcasting, from the broadcasting electric-wave radio signal received by the television antenna, the image data of a specific channel is taken out and image display is carried out to a television set with a tuner. The tuning operation which makes the set point of a tuner memorize is needed so that a user may align with the

frequency of the television broadcasting for which it asks to two or more channel buttons of each at the time of television set installation. Looking at the screen of a television set, a user operates the adjustment operation part of the television set which it has for tuner adjustment, and performs this tuning operation (namely, adjustment control operation of a tuner).
It is common that adjustment control of a tuner is made by the help so that it may become the optimal screen display.

[0004]
[Problem to be solved by the invention]However, when receiving the usual television broadcasting via a television antenna, it will be beforehand forced the tuner adjustment control operation in which the tuner of a television set needs to be adjusted and a user is delicate as mentioned above. Since judgment whether adjustment with optimal tuner is made is left to the user's screen confirmation, optimal adjustment may not necessarily be performed. In the usual television broadcasting, since channel configurations differ and the radio frequency for television broadcasting also changes with areas, the tuner adjustment by a user has been complicated more. This invention is made in view of this problem, and the depression of an operation key in which the complicated tuner adjustment control operation (namely, tuning operation) of the television set is provided by the portable telephone terminal is only performed, making adjustment control change into the optimal state automatically -- a user -- from delicate tuner adjustment control operation (namely, tuning operation) -- it can open wide -- it is a thing.
[0005]
[Means for solving problem]The arts means which constitutes this invention comprises each arts means like the next.
[0006]In the portable telephone terminal in which the 1st arts means can receive the image data (it is hereafter written as the 1st image data) of the television broadcasting signal broadcast via the communication network of a portable phone system, The television set received by the television antenna. It makes it possible to input the image data (it is written as the 2nd image data below) of the television broadcasting from (writing it as a television receiver hereafter), And it has TV connection interface means which makes it possible to output to said television receiver by making into a control signal tuner adjustment control information which carries out adjustment control of the tuning frequency of the tuner of said television receiver, Said 2nd image data from said television receiver inputted via this TV connection interface means, The image comparing means which carries out comparative collation of the 1st image data of the television broadcasting received via the communication network of said portable phone system, So that it may be made in agreement [approach and] with said 1st image data, [based on the comparative collation result by this image comparing means] [said 2nd image data of the television broadcasting received via said television antenna] Said tuner adjustment control information for carrying out adjustment control of the tuner of said television receiver is made into a control signal, It is considered as a portable telephone terminal provided with the tuner control signal output means outputted via said TV

connection interface means. It is possible to bring the tuner set point of a television set close to the optimal state by **(ing) and making tuner adjustment control based on the image data of the television broadcasting received via the communication network of the portable phone system which can correct a transmission error.

[0007]In a portable telephone terminal provided with the positional information detecting means with possible the 2nd arts means receiving the whereabouts position of the base transceiver station which has transmitted and received the radio signal via the communication network of a portable phone system from this base transceiver station, It has TV connection interface means which makes it possible to output to said television receiver by making into a control signal tuner adjustment control information which carries out adjustment control of the tuning frequency of the tuner of a television set (it is hereafter written as a television receiver), A tuner adjustment control information index means to carry out the index of the tuner adjustment control information of said television receiver, and to acquire it based on the location information of said base transceiver station detected by said positional information detecting means, Based on said tuner adjustment control information by which the index was carried out, tuner control information for carrying out adjustment control of the tuner of said television receiver is made into a control signal, It is considered as a portable telephone terminal provided with the tuner control signal output means outputted via said TV connection interface means. It is possible to ** and to bring the tuner set point of a television set close to the optimal state automatically based on location information.

[0008]The television set stored in the opposite apparatus in which interconnection of the 3rd arts means was carried out via the communication network of a portable phone system. [out of the tuner adjustment control information which carries out adjustment control of the tuning frequency of the tuner of (writing it as a television receiver hereafter)] [the tuner adjustment control information returned according to a demand] [via said communication network] In a portable telephone terminal provided with receivable TV control signal transmission and reception means, Have TV connection interface means which makes it possible to output to said television receiver by making said tuner adjustment control information about the tuner of a television receiver into a control signal, and with said TV control signal transmission and reception means, It is considered as a portable telephone terminal provided with the tuner control signal output means outputted via said TV connection interface means by making into a control signal said tuner adjustment control information received from said opposite apparatus. It is possible to ** and to bring the tuner set point of a television set close to the optimal state based on the optimal tuner adjustment control information by which storage is carried out to said opposite apparatus.

[0009]Let the 4th arts means be a portable telephone terminal provided with the control means by the help for carrying out start indication of the adjustment control of the tuner of said television receiver in the portable telephone terminal of a description to either said 1st [the] thru/or the 3rd arts means. It is possible to ** and to bring the tuner set point of a television set close to the optimal state in arbitrary time by adjustment start indication operation by an easy help always at the time of the beginning which installed the television set especially.

[0010]Let the 5th arts means be a portable telephone terminal provided with the timer start control means which was beforehand provided in the portable telephone terminal of a description in either said 1st [the] thru/or the 3rd arts means and to which start indication of the adjustment control of the tuner of said television receiver is periodically carried out for every time limit. When it ** and a television set always moves, or when the transmitting origin of an electric wave moves like satellite broadcasting, even if it is in the situation where the image data of the television broadcasting received with a television antenna changes, A tuner established state can be brought close to the optimal state, and can be made to set up automatically periodically.

[0011]In a portable telephone terminal given in said 1st [the] thru/or the 4th either, [the 6th arts means] It has a displaying means to which image display of the image data of the television broadcasting received via the communication network of a portable phone system is carried out, [the picture by which image display is carried out to this displaying means, and the picture which has the same Television Sub-Division contents of broadcast] Have a control means which can perform the directions displayed on said television receiver, and tuner adjustment control information for carrying out adjustment control of the tuner of said television receiver is made into a control signal based on operation of this control means, It is considered as a portable telephone terminal provided with the tuner control signal output means outputted via said TV connection interface means. It can ** and the operativity at the time of an adjustment person's tuner adjustment control operation can be raised.

[0012]In a portable telephone terminal given in either said 1st [the] thru/or the 6th arts means, [the 7th arts means] The specification specified among each channel of two or more television broadcasting receivable in a current position, Or it has an output channel directing means which can perform selection instructing which extracts and outputs the tuner adjustment control information about all the receivable channels, Based on said tuner adjustment control information about the channel which this output channel directing means directs, said tuner adjustment control information for carrying out adjustment control of the tuner of said television receiver is made into a control signal one by one, It is considered as a portable telephone terminal provided with the tuner control signal output means outputted via said TV connection interface means. It **, and the established state of a tuner can be brought close to the optimal state, and can be made to set up by easy operation, respectively about the specific channel specified about two or more television broadcasting receivable at the present place, or each of all the receivable channels.

[0013]In a portable telephone terminal given in either said 1st [the] thru/or the 7th arts means, [the 8th arts means] It is considered as a portable telephone terminal provided with the tuner control signal output means which outputs the control signal for storing said tuner adjustment control information over said television receiver in said television receiver via said TV connection interface means. Since it can ** and archival memory of this tuner adjustment control information can be carried out to the Television Sub-Division receiver end, it becomes unnecessary to repeat and perform an adjustment setup of the tuner of a television set from a portable telephone terminal.

[0014]Based on the control signal from the portable telephone terminal of a description, the 9th arts means to either said 1st [the] thru/or the 8th arts means The adjustment control action of a tuner, and/. Or it is considered as the television set to which the storage control operation which makes tuner adjustment control information memorize can be made to perform. It can ** and the user of a television set can make an adjustment setup of the tuner which needed adjustment setting operation with manual operation carry out automatically only by easy operation of a portable telephone terminal.

[0015]

[Mode for carrying out the invention]One embodiment in the portable telephone terminal and television set concerning this invention is described below, referring to Drawings. Drawing 1 is a block lineblock diagram showing one embodiment of a portable telephone terminal and a television set concerning this invention, and shows the connected state of the portable telephone terminal and television set which are received via the communication network of a portable phone system and which can receive the radio wave signal of television broadcasting.

[0016]In drawing 1, the television set which requires for this invention the portable telephone terminal which requires 10 for this invention, and 30, and 50 show the base transceiver station of a portable phone system, and 60 shows the Television Sub-Division broadcasting station. The portable telephone terminal 10 has the wireless section 11, the control section 12, the display operating section 13, the TV broadcast signal receive section 14, the position information receive section 15, TV control signal acquisition part 16, the picture comparing element 17, the tuner control signal output part 18, and the TV connection connector 19. [the wireless section 11] [between the base transceiver stations 50 of a portable phone system] [via a communication network] It comprises the antenna 11a which transmits and receives a wireless wave signal, and the radio transmission and reception section 11b which performs transmitting and receiving processing of the wireless wave signal transmitted and received with said antenna 11a based on the directions from the control section 12.

[0017]The control section 12 analyzes the various signals from the base transceiver station 50 received by the radio transmission and reception section 11b, and. [the control section] Control operation of the portable telephone terminal 10 whole concerned, and transmit and receive various signals between the base transceiver stations 50, transmit and receive various signals between the television sets 30 by which interconnection was carried out, or, [or among users] Via the display operating section 13, it faces performing various kinds of information exchange, and directions and control of this operation are performed.

[0018]The display operating section 13 is provided with the following.

The indicator 13a which consists of LCD for displaying a variety of information, etc. to a user.

The control unit 13b which consists of an operation key etc. which input the variety of information from a user.

After reception of the indicator 13a which consists of LCD etc. here is carried out in the TV broadcast signal receive section 14 in the image data of television broadcasting transmitted via the communication network of a portable phone system, it can also carry out image display of

this image data. [the control unit 13b which consists of operation keys etc.] Start indication which can perform various kinds of directions of operation to the TV broadcast signal receive section 14, the position information receive section 15, TV control signal acquisition part 16, etc., for example, makes the adjusting operation of the tuner of the television set 30 start to the TV broadcast signal receive section 14 can also be performed.

[0019]With said start indication by the adjustment start indication key $13b_1$ depression in the control unit 13, [the TV broadcast signal receive section 14] The image data of the television broadcasting signal received via the communication network of a portable phone system in the wireless section 11 is received via the control section 12, Image Processing Division is performed, and a screen display is made to perform to the indicator 13a. This image data that performed Image Processing Division is transmitted to the picture comparing element 17.

[0020]The position information receive section 15 points to acquisition of the ID information of the base transceiver station 50 which can show the whereabouts position of the base transceiver station 50 which has transmitted the receivable wireless wave signal in the wireless section 11, and extracts the current position information of the portable telephone terminal 10 concerned based on this acquired ID information. The position information receive section 15 acquires the tuner adjustment control information about the television channel of television broadcasting received in a current position from this current position information by carrying out the index of the tuner adjustment control information index parts 15a, and notifies to the tuner control signal output part 18.

[0021]As opposed to the opposite apparatus (for example, information processor etc.) which TV control signal acquisition part 16 is connected to the communication network of a portable phone system, and can communicate to the portable telephone terminal 10 and mutual, In the whereabouts place of the portable telephone terminal 10 demanded out of the tuner adjustment control information by which makes transmit the demand signal for making the tuner adjustment control information of a television receiver return, and preservation storing is carried out into this opposite apparatus, The tuner adjustment control information used as the optimal receiving condition is searched, and it is made to reply to the portable telephone terminal 10. The image data of the television broadcasting in which the television set 30 received the picture comparing element 17 from the Television Sub-Division broadcasting station 60 with the television antenna, Compare the image data of television broadcasting which was received via the communication network of a portable phone system, and has been transmitted from the TV broadcast signal receive section 14, and. Based on this comparison result, the tuner adjustment control information to which setting adjustment of the tuner of the television set 30 is made to carry out is generated in order to coincide both image data, and it transmits to the tuner control signal output part 18.

[0022]The tuner control signal output part 18 creates the control signal over the television set 30 based on said received tuner adjustment control information, and outputs this control signal to the television set 30 via the TV connection connector 19.

[0023]On the other hand, the television set 30 has the television antenna 31, the tuner 32, the external signal receive section 33, the memory 34, and the external connection connector 35.

The television antenna 31 is an antenna which receives the Television Sub-Division broadcasting electric-wave signal from the Television Sub-Division broadcasting station 60. The tuner 32 extracts the Television Sub-Division broadcasting electric-wave signal which has the tuning frequency set up out of the carrier frequency of the Television Sub-Division broadcasting electric-wave signal received by the television antenna 31, The image data of the television broadcasting included in this Television Sub-Division broadcasting electric-wave signal is made to receive.

[0024]The external signal receive section 33 is seen out from the tuner control signal output part 18 of the portable telephone terminal 10, and the TV connection connector 19, and decodes said control signal for the tuner adjustment control received via the external connection connector 35, Adjustment control information is sent out to the tuner 32, and the tuner 32 is made to adjust. The memory 34 memorizes the tuner adjustment control information notified from the portable telephone terminal 10 based on the directions from the external signal receive section 33. [by saving this tuner adjustment control information within the television set 30] It is possible to take out this tuner adjustment control information after the adjustment saved if needed, and it becomes unnecessary to carry out adjustment control of the set point of the tuner 32 from a portable telephone terminal continuously with the directions from the external signal receive section 33.

[0025]Interconnection of the external connection connector 35 is carried out to the TV connection connector 19 of the portable telephone terminal 10, [the control signal about the tuner adjustment control information from the tuner control signal output part 18 of the portable telephone terminal 10] It sends out to the external signal receive section 33 in the television set 30, or it is conversely received by the television antenna 31, and the image data of the television broadcasting extracted by the tuner 32 is transmitted to the portable telephone terminal 10 side. Although the example by which interconnection is carried out in connection between the portable telephone terminal 10 and the television set 30 in the connector joint form by the TV connection connector 19 and the external connection connector 35, respectively is shown in this example, Of course, it does not matter even if it is the connection form by wireless communications, such as not the thing to restrict to this connection form but infrared rays, and Blue Tooth.

[0026]Next, the image data of the television broadcasting from the Television Sub-Division broadcasting station 60 received with the television set 30 by the television antenna 31, In the portable telephone terminal 10, [the image data of the television broadcasting received with the portable telephone terminal 10 via the communication network of a portable phone system] An example of operation in the case of making adjustment control of the tuner of the television set 30 perform by carrying out comparative collation is explained using the flow chart of drawing 2, referring to the block lineblock diagram of drawing 1. It is a flow chart drawing 2 indicates the outline of operation of the both sides of the portable telephone terminal 10 and the television set 30 to be here.

[0027]When adjustment start indication key $13b_1$ provided in the control unit 13b of the portable telephone terminal 10 in drawing 1 is first pushed in drawing 2 (Step S1), [the control

section 12] Extraction of the television broadcasting signal equivalent to the channel by which adjustment start indication is made among the television broadcasting signals included in the wireless wave signal from the base transceiver station 50 by which reception is carried out in the wireless section 11 is directed to the TV broadcast signal receive section 14. The TV broadcast signal receive section 14 which received these directions extracts a television broadcasting signal out of the wireless wave signal from the wireless section 11, performs Image Processing Division about the picture signal included in this television broadcasting signal, and extracts and acquires the image data of television broadcasting (Step S2). [/ this / adjustment start indication key 13b$_1$] The portable telephone terminal 10 concerned is a key which requires that tuner adjustment control of the television set 30 should be performed based on the image data of the television broadcasting received via the communication network of a portable phone system, and the control unit 13b by the side of the portable telephone terminal 10 is equipped with it.

[0028]The image data of the television broadcasting acquired in the TV broadcast signal receive section 14 is sent out to the picture comparing element 17. In the television set 30 side on the other hand, In the channel set up as an adjustment control plug now as long as it is in the state where the power supply of this television set 30 is switched on, and the external connection connector 35 is connected, The image data of the television broadcasting received by the television antenna 31 is always transmitted to the portable telephone terminal 10 side via this external connection connector 35 from the Television Sub-Division broadcasting station 60. [the picture comparing element 17 which followed and received the directions from the control section 12 of the portable telephone terminal 10] the image data of the television broadcasting from the television set 30 inputted via the TV connection connector 19 -- taking in (Step S3) -- comparative collation is carried out to the image data of television broadcasting transmitted from the TV broadcast signal receive section 14 (Step S4).

[0029]When the image data of a comparison result and both sides has a difference (YES of Step S5), So that the image data of the television broadcasting from the television set 30 may approach the image data of television broadcasting transmitted from the TV broadcast signal receive section 14 based on the difference quantity of both image data, The tuner adjustment control information which carries out adjustment control of the tuner of the television set 30 is computed (Step S6). This computed tuner adjustment control information is sent out to the tuner control signal output part 18, and the tuner control signal output part 18 creates the control signal which has this received tuner adjustment control information, and transmits to the television set 30 side via the TV connection connector 19 (Step S7).

[0030]On the other hand, [the external signal receive section 33 of the television set 30 side] [via the external connection connector 35] If the control signal which shows said tuner adjustment control information is received from the portable telephone terminal 10 side, this control signal will be decoded and the tuner adjustment control

information which this control signal shows will be transmitted to the tuner 32. The tuner 32 is made to change into the frequency in which tuning frequency is directed based on this tuner adjustment control information (Step S8). The external signal receive section 33 stores also in the memory 34 this tuner adjustment control information included in this control signal, and makes it save (Step S9).

[0031]Although the receiving condition of the image data of the television broadcasting from the television antenna 31 is changed according to the changed tuning frequency, The image data of this television broadcasting changed and received is transmitted to the picture comparing element 17 by the side of the portable telephone terminal 10 via the external connection connector 35 as it is, as mentioned above. It follows and comparative collation operation with the image data of the television broadcasting from the television antenna 31 after tuner adjustment control and the image data of television broadcasting transmitted from the TV broadcast signal receive section 14 is repeated (Step S10).

[0032]A comparison result and when both image data still has a difference (YES of Step S11), it compares with the difference quantity at the time of the comparative collation about the image data before this adjustment control execution, New tuner adjustment control information is computed in order to make the adjustment control of the tuner carry out in (YES of Step S12), and the same direction, when a difference quantity is becoming small (Step S13), and the adjusting operation of a tuner is made to continue. On the contrary, new tuner adjustment control information is computed in order to make (NO of Step S12), last time, and an opposite direction carry out adjustment control of the tuner, when the difference quantity has become large (Step S14). This computed tuner adjustment control information is sent out to the television set 30 side as a control signal (Step S15), Adjustment control of the tuner 32 is made to perform (Step S16), and this tuner adjustment control information returns to back (Step S17) step S10 by which storing preservation was carried out also at the memory 34 by the side of the television set 30, and it is judged whether the adjusting operation of the tuner was completed.

[0033]the case (NO of NO or S5 of Step S11) where a difference is lost to the image data of a comparative collation result and both sides -- a state with a suitable tuner -- an adjustment system -- since it was made, adjusting operation is terminated. The situation of this adjusting operation is suitably displayed on the indicator 13a of the portable telephone terminal 10, and an adjustment control result is also displayed on the indicator 13a.

[0034]It **, a user is only easy operation in which it is only to carry out depression operation of adjustment start indication key $13b_1$, and making the suitable adjustment control to the tuner 32 of the television set 30 perform automatically is realized. Since said tuner adjustment control information directed from the portable telephone terminal 10 is saved in the memory 34 one by one, Once the last adjustment result will be saved at the television set 30 side and the depression of adjustment start indication key $13b_1$ of the portable telephone terminal 10 even

performs adjustment control of a tuner, the user does not need to perform the same operation repeatedly and a user's burden will be eased.

[0035]Next, based on the measurement result of the position information which is carrying out the whereabouts of the portable telephone terminal 10, the tuner adjustment control information of the television set 30 is computed automatically, The operation in the case of performing adjustment control of the tuner 32 of the television set 30 is explained using the flow chart of drawing 3, referring to the block lineblock diagram of drawing 1. It is a flow chart which shows the outline of the operation in which drawing 3 computes the tuner adjustment control information of the television set 30 here based on the position information on the portable telephone terminal 10, and it is made to perform adjustment control of the tuner 32.

[0036]When position information detection channel key $13b_2$ in the control unit 13b of the portable telephone terminal 10 is pushed in drawing 3 (Step S21), [the control section 12 of the portable telephone terminal 10] By starting the TV broadcast signal receive section 14, the position information detection demand signal which detects the position information on the portable telephone terminal 10 concerned is sent out to the position information receive section 15 (Step S22). [/ this / position information detection channel key $13b_2$] It is a key which requires that tuner adjustment of the television set 30 should be performed, and prepares for the control unit 13b by the side of the portable telephone terminal 10 so that the portable telephone terminal 10 concerned may be in the optimal receiving condition in this whereabouts position based on the position information which carries out the whereabouts.

[0037][the position information receive section 15 which received said position information detection demand signal] In the wireless section 11, the transmission of base transceiver station ID information which can identify the position of the base transceiver station 50 in a receivable position is required from the base transceiver station 50, and the current position of the portable telephone terminal 10 concerned is detected based on this replied base transceiver station ID information (Step S23). In the current position from the current position information which the position information detecting element 15 detected, [each tuner adjustment control information which needs the image data of each channel of television broadcasting in order to consider it as ability ready for receiving by each channel of the television set 30] Out of the registration table which constitutes the tuner adjustment control information index parts 15a provided in the position information receive section 15, an index and calculation are carried out and it acquires (Step S24). Record preservation of the optimal tuner adjustment control information of the television set 30 corresponding to the information which the current position of the portable telephone terminal 10 shows in the registration table as the tuner adjustment control information index parts 15a here is carried out for every channel of television broadcasting.

[0038]From the position information receive section 15, this computed tuner adjustment control information is sent out to the tuner control signal sending part 18, and, [the tuner control signal sending part 18] The control signal which shows this received tuner adjustment control information is created, and it transmits to the television set 30 side via the TV connection connector 19 (Step S25).

[0039]On the other hand, [the external signal receive section 33 of the television set 30 side] [via the external connection connector 35] If the control signal which shows said tuner adjustment control information transmitted from the portable telephone terminal 10 side is received, this control signal will be decoded and the tuner adjustment control information which this control signal shows will be transmitted to the tuner 32. The tuner 32 makes each channel correspond and makes the frequency which should be set up as tuning frequency of each channel set up based on this tuner adjustment control information (Step S26). The external signal receive section 33 stores also in the memory 34 the tuner adjustment control information included in this control signal, and makes it save (Step S27).

[0040]** and a user only does the depression of position information detection channel key $13b_2$ of the television set 30,The present position information on the television set 30 connected to the portable telephone terminal 10 10, i.e., this portable telephone terminal, is detected based on the ID information of the base transceiver station 50, The tuner adjustment control information of the television set 30 in this current position can be searched for automatically, and the tuner adjustment control corresponding to the channel of the television set 30 can be made to perform simply.

[0041][next via the opposite apparatus (for example, information processor etc.) which can communicate to the portable telephone terminal 10 connected to the communication network of a portable phone system, and mutual to this communication network] The tuner adjustment control information of the television set 30 is acquired, and the operation in the case of performing adjustment control of the tuner 32 of the television set 30 based on this adjustment control information is explained using the flow chart of drawing 4, referring to the block lineblock diagram of drawing 1. It is a flow chart which shows here the outline of the operation in which drawing 4 makes adjustment control of the tuner of the television set 30 perform based on the tuner adjustment control information of the television set 30 from the opposite apparatus connected with the portable telephone terminal 10.

[0042]When opposite apparatus specification channel key $13b_3$ in the control unit 13b of the portable telephone terminal 10 is first pushed in drawing 4 (Step S31), [the control section 12 of the portable telephone terminal 10] The wireless section 11 is received by starting TV control signal acquisition part 16, So that communication with the opposite apparatus (for example, information processor etc.) which saves the control information about the television set 30 of the area concerned may be performed and the tuner adjustment control information of a

television set may be acquired, A tuner adjustment control information acquisition request signal is sent out to the wireless section 11 (Step S32). [/ this opposite apparatus specification channel key $13b_3$] [via the communication network of the portable phone system to which the portable telephone terminal 10 concerned is connected] [based on the tuner adjustment control information received from the opposite apparatus which consists of an information processor etc. which own the tuner adjustment control information of the television set / in / the portable telephone terminal 10 concerned and communication are possible, and / the position in which the portable telephone terminal 10 concerned carries out the whereabouts / 30] It is a key which requires that tuner adjustment control of the television set 30 should be performed, and prepares for the control unit 13b by the side of the portable telephone terminal 10.

[0043][the wireless section 11 which received this tuner adjustment control information acquisition request signal] This tuner adjustment control information acquisition request signal is transmitted to the opposite apparatus (for example, information processor etc.) which is carrying out storage of the control information about this television set 30 via the communication network of a portable phone system (Step S33).

[0044][the opposite apparatus (for example, information processor etc.) which received this tuner adjustment control information acquisition request signal] The tuner adjustment control information of the television set 30 of the area in which the portable telephone terminal 10 of the requiring agency is carrying out the whereabouts is taken out out of the tuner adjustment control information of the television set 30 which is carrying out storage, and it returns via the communication net work of a portable phone system (Step S34).

[0045]When the tuner adjustment control information of the returned television set 30 is acquired (Step S35), [this tuner adjustment control information] Sent out to the tuner control signal sending part 18 from TV control signal acquisition part 16, the tuner control signal sending part 18 creates the control signal which shows this received tuner adjustment control information, and transmits to the television set 30 side via the TV connection connector 19 (Step S36).

[0046]On the other hand, [the external signal receive section 33 of the television set 30 side] [via the external connection connector 35] If the control signal which shows said tuner adjustment control information is received from the portable telephone terminal 10 side, this control signal will be decoded and the tuner adjustment control information which this control signal shows will be transmitted to the tuner 32. The tuner 32 makes each channel correspond and makes the frequency which should be set up as tuning frequency of each channel set up based on this tuner adjustment control information (Step S37). The external signal receive section 33 stores also in the memory 34 the tuner adjustment control information which this control signal shows, and makes it save (Step S38).

[0047]** and a user only does the depression of opposite apparatus specification channel key $13b_3$ of the television set 30, The tuner adjustment control information of the television set 30 by which storage is carried out to opposite apparatus (for example, information processor etc.) is acquired via the communication network of a portable phone system, The tuner adjustment control corresponding to the channel of the television set 30 can be made to perform simply.

[0048]According to the cell phone unit and television set concerning this invention, said one of key operation means. [by using (namely, adjustment start indication key $13b_1$, position information detection channel key $13b_2$, and opposite apparatus specification channel key $13b_3$)] It realizes making adjustment control of the tuner of a television set perform simply, and in order that a user may perform tuner setting operation of a television set, the tuner setting operation section provided in the television set can also be made unnecessary.

[0049]If connection between the TV connection connector 19 by the side of the portable telephone terminal 10 and the external connection connector 35 of the television set 30 is made to realize by wireless communication means, such as infrared rays, It is also possible to use the portable telephone terminal 10 like positioning as a remote control device of the television set 30.

[0050]The inside of each channel of two or more television broadcasting which serves as ability ready for receiving at the place in which the television set 30 concerned is carrying out the whereabouts to the portable telephone terminal 10 concerning this invention, Two or more specific channels specified only about one specified specific channel, Or it has the output channel directions part 18a which directs to compute and acquire the tuner adjustment control information about all the receivable channels, and to output it based on the directions from the control unit 13b. Based on operation of the once of the operation key (not shown) in the control unit 13b, [this output channel directions part 18a] The channel information (namely, output channel information which specifies one or more specified channels or all the receivable channels) of the television broadcasting as which adjustment control is demanded is acquired. According to this output channel information, the tuner adjustment control information of the television set 30 for every [corresponding to this output channel information] channel is acquired by one which is shown in said drawing 2 thru/or drawing 4 of means, The specification which contains based on this acquired tuner adjustment control information also in two or more cases, Or if the tuner adjustment control action corresponding to all the channels is carried out to your making it carry out one by one, it is also possible to set to a tuner established state with each of each optimal channel of the television set in this whereabouts position easily to two or more channels of each. In an invention given in Claims 1 and 6, Selection reception is [in / via the communication network of a portable phone system / in the image data of the television broadcasting corresponding to each channel of the television set 30 which will be in a receivable state at the

whereabouts place concerned / the portable telephone terminal 10] possible.

[0051]It is possible to also make the indicator 13a carry out image display of the image data of the received television broadcasting to the indicator 13a of the portable telephone terminal 10 beforehand by control of the TV broadcast signal receive section 14 via the communication network of a portable phone system. An adjustment person pushes same display instruction key $13b_4$ in the control unit 13b, after checking the picture currently displayed on the indicator 13a, It is also possible to perform adjustment control of the tuner of the television set 30, and, thereby, it can raise an adjustment person's operativity so that the picture used as the same Television Sub-Division contents of broadcast as this display image may be made to display on the television set 30.

[0052]Although not illustrated, it is also possible to make the portable telephone terminal 10 concerning this invention equipped with a timer start control means, and to perform tuner adjustment control periodically at the time mentioned above. It detects that the time limit set up beforehand passed in this timer start control means, The tuner adjustment control action shift and using that means to mention above (that is.) [whether it is made to set to a tuner adjustment control state to make it in agreement / approach and / with the image data of the television broadcasting received via the communication network of a portable phone system] Or. [make / it / to set to the optimal tuner adjustment control state registered beforehand based on the detected position information] Or. [make / it / to set to the optimal tuner adjustment control state by which storage is carried out to opposite apparatus] Or. [make / the same screen display as the Television Sub-Division contents of broadcast by which image display is carried out to the indicator / to carry out an adjustment setup of the tuner of a television set] ** -- inner one of tuner adjustment control actions is made to carry out, and when changing the receiving condition of the television broadcasting in a television antenna, even if it is, it will be in the optimal frequency tuning state automatically to carry out an adjustment setup possible.

[0053]In each above-mentioned embodiment, although only tuner adjustment control of the television set is shown using the portable telephone terminal, it is also possible to, perform recording reservation control of the Television Sub-Division program from the portable telephone terminal concerning this invention for example, without restricting only in this case.

[0054]

[Effect of the Invention](Operation effect to an invention given in Claim 1) The image data of the television broadcasting received by the television antenna of a television set, So that comparative collation of the image data of the television broadcasting received with a portable telephone terminal via the communication network of a portable phone system may be carried out and the difference of both image data may become small based on this comparative collation result, By carrying out adjustment control of the tuning frequency of the tuner of a

television set, it becomes possible to tune up a television set easily. It becomes unnecessary to make a television set equipped with the adjustment operation part for tuner adjustment operation, and the manufacturing cost of a television set can be reduced. It also becomes possible by connecting a portable telephone terminal and a television set using radio signals, such as infrared rays, to position a portable telephone terminal like the remote control device of a television set, and to deal with it.

[0055](Operation effect to an invention given in Claim 2) When the portable telephone terminal connected with the television set carries out the index of the tuner adjustment control information of a television set and acquires it based on the current position which carries out the whereabouts, Since adjustment control of the tuner of a television set is made to perform, it is easy operation and it is possible to tune up a television set. It becomes unnecessary to make a television set equipped with the adjustment operation part for tuner adjustment operation, and the manufacturing cost of a television set can be reduced. It also becomes possible by connecting a portable telephone terminal and a television set using radio signals, such as infrared rays, to position a portable telephone terminal like the remote control device of a television set, and to deal with it.

[0056](Operation effect to an invention given in Claim 3), [the portable telephone terminal connected with the television set] [via the communication network of a portable phone system] Since the tuner adjustment control information of the television set by which storing preservation is carried out is acquired to the opposite apparatus (for example, information processor etc.) which can communicate mutually and adjustment control of the tuner of a television set is made to perform, It is possible to tune up a television set by easy operation. It becomes unnecessary to make a television set equipped with the adjustment operation part for tuner adjustment operation, and the manufacturing cost of a television set can be reduced. It also becomes possible by connecting a portable telephone terminal and a television set using radio signals, such as infrared rays, to position a portable telephone terminal like the remote control device of a television set, and to deal with it. It also becomes it is unnecessary to make the portable telephone terminal itself memorize tuner adjustment control information, and unnecessary to be able to omit the time and effort which inputs this information or carries out adjustment maintenance at the right information according to a receiving condition for every portable telephone terminal, and to provide the memory for memory.

[0057](Operation effect to an invention given in Claim 4). [only making the operation key which specifies and carries out start instruction of the adjustment control action classification of the tuner of a television set to a portable telephone terminal have] Since adjustment control of the delicate tuner of a television set is made automatically, An adjustment person's burden can be made to ease and it is possible always in arbitrary time to bring the tuner set point of a television set close to the optimal state at the time of the beginning which installed

the television set especially.

[0058](Operation effect to an invention given in Claim 5), [tuner adjustment control of a television set] [the interval which was able to be defined beforehand] The case where a television set always moves since you are making it carry out periodically, Even if it is in the situation where the broadcast state of the television broadcasting received with a television antenna changes, the optimal tuner adjustment control (namely, tuning) can be made to perform automatically, when the transmitting origin of an electric wave moves like satellite broadcasting.

[0059](Operation effect to an invention given in Claim 6), [the display device of a portable telephone terminal] After checking the picture which displays beforehand the image data of the television broadcasting received via the communication network of a portable phone system, and serves as the contents of television broadcasting, Adjustment control (namely, tuning) of the tuner of a television set can be performed, and an adjustment person's operativity can be raised.

[0060](Operation effect to an invention given in Claim 7) Once with easy operation, Adjustment control of the tuner to two or more channels of each of television broadcasting receivable at the present place can be made to carry out one by one, The thing in the present whereabouts position made to perform the optimal tuning for every channel is possible, and it can use effectively in initial tuning of a television set.

[0061](Operation effect to an invention given in Claim 8) Since storage of the adjustment control information of the tuner after the completion of tuner adjustment is carried out to the memory of the Television Sub-Division receiver end, [the control information] The once set-up tuner adjustment control information can be used at any time, and the tuner adjustment setting work at the time of specific channel specification can be made to simplify. It can use effectively also in the case of the initial tuning at the time of television set installation, and can tune up to it quickly.

[0062](Operation effect to an invention given in Claim 9), [by making the tuner regulatory control function of a television set give the portable telephone terminal side] It becomes possible to make adjustment carry out automatically so that the adjustment mechanism of a television set can be simplified and it may change [in / for the user of a television set / the tuning operation of a television set] into the optimal state easily.

[Brief Description of the Drawings]

[Drawing 1]It is a block lineblock diagram showing one embodiment of a portable telephone terminal and a television set concerning this invention.

[Drawing 2]It is a flow chart which shows the outline of the operation in which adjustment control of the tuner of a television set is made to perform based on the image data of the television broadcasting which the portable telephone terminal received.

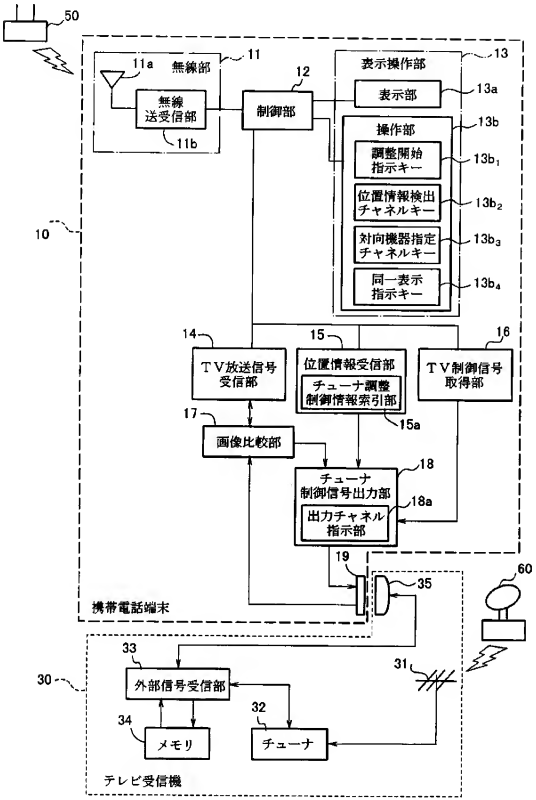
[Drawing 3]It is a flow chart which shows the outline of the operation which computes the tuner adjustment control information of a television set, and in which adjustment control of a tuner is made to perform based on the position information on a portable telephone terminal.

[Drawing 4]Drawing 4 is a flow chart which shows the outline of the operation in which adjustment control of the tuner of a television set is made to perform based on the tuner adjustment control information of the television set from the opposite apparatus by which interconnection was carried out to the portable telephone terminal.

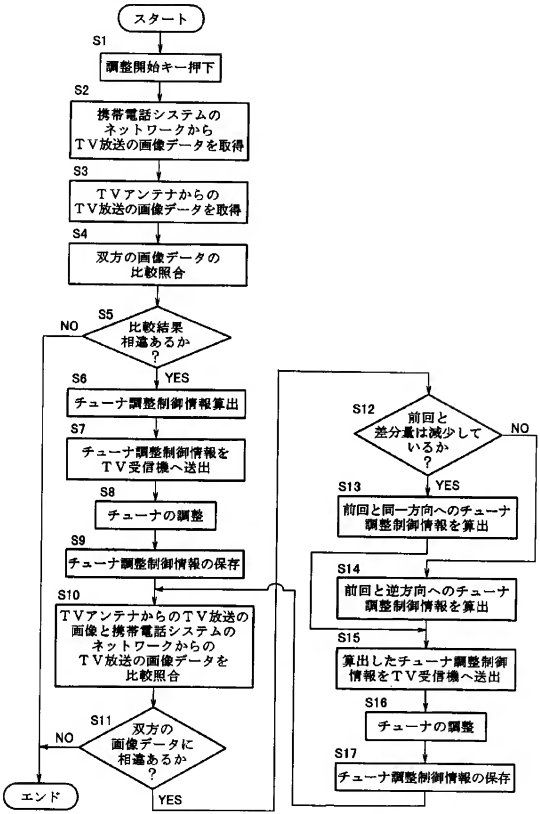
[Explanations of letters or numerals]

10 [-- A radio transmission and reception section, 12 / -- A control section, 13 / -- A display operating section, 13a / -- An indicator, 13b / -- A control unit, 13b.] -- A portable telephone terminal, 11 -- A wireless section, 11a -- An antenna, $11b_1$ -- An adjustment start indication key, $13b_2$ -- Position information detection channel key, $13b_3$ -- An opposite apparatus specification channel key, $13b_4$ -- The same display instruction key, 14 -- A TV broadcast signal receive section, 15 -- A position information receive section, 15a -- Tuner adjustment control information index parts, 16 -- TV control signal acquisition part, 17 -- A picture comparing element, 18 -- Tuner control signal output part, 18a [-- A television antenna, 32 / -- A tuner, 33 / -- An external signal receive section, 34 / -- A memory, 35 / -- An external connection connector, 50 / -- A base transceiver station, 60 / -- Television Sub-Division broadcasting station.] -- An output channel directions part, 19 -- TV connection connector, 30 -- A television set, 31

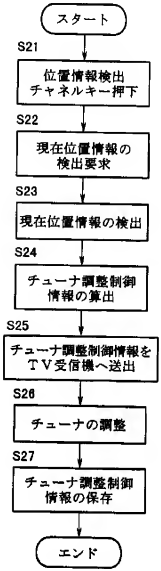
[Drawing 1]


50
11
11a
無線部
無線送受信部
11b
12
制御部
13
表示操作部
13a
表示部
13b
操作部
調整開始指示キー
13b1
位置情報検出チャネルキー
13b2
対向機器指定チャネルキー
13b3
同一表示指示キー
13b4
10
14
TV放送信号受信部
15
位置情報受信部
チューナ調整制御情報索引部
15a
16
TV制御信号取得部
17
画像比較部
18
チューナ制御信号出力部
18a
出力チャネル指示部
19
35
60
携帯電話端末
33
30
外部信号受信部
31
32
34
メモリ
チューナ
テレビ受信機

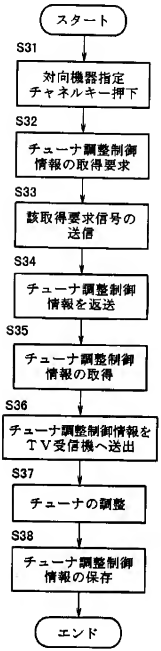
[Drawing 2]


スタート
S1
調整開始キー押下
S2
携帯電話システムの
ネットワークから
TV放送の画像データを取得
S3
TVアンテナからの
TV放送の画像データを取得
S4
双方の画像データの
比較照合
S5
比較結果
相違あるか
?
NO
YES
S6
チューナ調整制御情報算出
S7
チューナ調整制御情報を
TV受信機へ送出
S8
チューナの調整
S9
チューナ調整制御情報の保存
S10
TVアンテナからのTV放送の
画像と携帯電話システムの
ネットワークからの
TV放送の画像データを
比較照合
S11
双方の
画像データに
相違あるか
?
NO
YES
エンド
S12
前回と
差分量は減少して
いるか
?
NO
YES
S13
前回と同一方向へのチューナ
調整制御情報を算出
S14
前回と逆方向へのチューナ
調整制御情報を算出
S15
算出したチューナ調整制御
情報をTV受信機へ送出
S16
チューナの調整
S17
チューナ調整制御情報の保存

[Drawing 3]


スタート
S21
位置情報検出
チャネルキー押下
S22
現在位置情報の
検出要求
S23
現在位置情報の検出
S24
チューナ調整制御
情報の算出
S25
チューナ調整制御情報を
ＴＶ受信機へ送出
S26
チューナの調整
S27
チューナ調整制御
情報の保存
エンド

[Drawing 4]



[Translation done.]